

CLAIMS

[100] We claim:

1. An isolated protein comprising SEQ ID NOS: 9, 13, 17, 21 or 25.
2. An isolated protein comprising SEQ ID NO: 26 linked to N-2 repeat(s) of SEQ
5 ID NO: 27, where N equals an integer from 3 through 200.
3. The protein of claim 2, where N equals an integer from 5 through 50.
4. The protein of claim 2, where N equals an integer from 10 through 30.
5. An isolated protein comprising SEQ ID NO: 26 plus SEQ ID NO: 28 plus [N-2
repeat(s) of SEQ ID NO: 27] plus SEQ ID NO: 29, where N equals an integer
10 from 10 through 30.
6. An isolated polynucleotide comprising a nucleic acid sequence encoding the
protein of claim 1.
7. An isolated polynucleotide comprising a nucleic acid sequence encoding the
protein of claim 2.
8. An isolated polynucleotide comprising a nucleic acid sequence encoding the
15 protein of claim 3.
9. An isolated polynucleotide comprising a nucleic acid sequence encoding the
protein of claim 4.
10. An isolated polynucleotide comprising a nucleic acid sequence encoding the
20 protein of claim 5.
11. An isolated protein comprising SEQ ID NOS: 7, 11, 15, 19 or 23.
12. An isolated polynucleotide comprising a nucleic acid sequence encoding the
protein of claim 11.
13. The polynucleotide of claim 6 wherein the polynucleotide comprises SEQ ID
25 NOS: 8, 12, 16, 20 or 24.
14. The polynucleotide of claim 12 wherein the polynucleotide comprises SEQ ID
NOS: 6, 10, 14, 18 or 22.

15. An isolated polynucleotide comprising a polynucleotide having at least 80% identity to SEQ ID NOS: 6, 10, 14, 18 or 22 over the entire length of the sequence.
16. The polynucleotide of claim 15 comprising a polynucleotide having at least 90% identity.
17. The polynucleotide of claim 15 comprising a polynucleotide having at least 95% identity.
18. The polynucleotide of claim 15 comprising a polynucleotide having at least 99% identity.
19. The protein of claims 1 or 2 wherein the protein is O-linked with β -(1-3)-Gal-GalNac.
20. A composition comprising a therapeutically effective amount of a protein of claim 19 in a pharmaceutically acceptable carrier.
21. The composition of claim 20 additionally comprising hyaluronan or hylan.
22. A method of treating a subject comprising:
obtaining the composition of claim 20; and
administering said composition to a tissue of the subject.
23. The method of claim 22 wherein the tissue is selected from the group consisting of cartilage, synovium, meniscus, tendon, peritoneum, pericardium, and pleura.
24. The method of claim 23 wherein the tissue is cartilage.
25. The method of claim 22 additionally comprising a step selected from the group consisting of: providing an anesthetic to the subject; providing an anti-inflammatory drug to the subject; providing an antibiotic to the subject; aspirating fluid from the subject; washing tissue of the subject; and imaging tissue of the subject.
26. The method of claim 22 wherein the subject is selected from the group consisting of a mouse, a rat, a cat, a dog, a horse and a human.
27. The method of claim 26 wherein the subject is a human.

28. An expression vector comprising the polynucleotide of claims 6 or 7 operably-linked to an expression control sequence.
29. A method of producing recombinant protein comprising:
growing cells transformed with the expression vector of claim 28 in liquid
5 culture media; and
collecting recombinant protein from the media.
30. The method of claim 29, wherein the collecting protein comprises:
concentrating the protein by filtering the media through a membrane;
collecting the retained protein from the membrane; and
10 solubilizing the collected protein in a buffered salt solution containing L-arginine hydrochloride ranging in concentration from 0.1 to 2.0 M.
31. The method of claim 30 wherein the L-arginine hydrochloride concentration is 0.5 M.
32. An isolated antibody specific for a protein of claims 1 or 2.